DOCUMENT RESUME

ED 139 204 EC 100 779

AUTHOR George, Pamela; McKinney, James D.
TITLE Successful Outcomes in Learning Disabilities Programs: A Formative Evaluation Model.
PUB DATE Apr 77
NOTE 17p.; Paper presented at the Annual International Convention, The Council for Exceptional Children (55th, Atlanta, Georgia, April 11-15, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Conceptual Schemes; Elementary Education; Exceptional Child Research; *Learning Disabilities; Models; *Program Evaluation; *Success Factors

ABSTRACT

Reported is an evaluation study involving learning disabled (LD) children (6 to 13 years old) in 23 LD programs in which children with successful outcomes were compared to children with unsuccessful outcomes. Among conclusions discussed are that Ss in the successful outcome group did not differ from those in the unsuccessful outcome group in age, ability level, or academic attainment when they entered the LD program; and that the unsuccessful group displayed more specific disabilities which were rated as more severe than those of the successful group. It is noted that the formative evaluation model discussed in the document considers the interaction of programmatic components with each child's individual characteristics, covering antecedent, transaction, and outcome variables. (IM)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

ED139204

P67
Session 288



# SUCCESSFUL OUTCOMES IN LEARNING DISABILITIES PROGRAMS: A FORMATIVE EVALUATION MODEL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

By: Pamela George
Doctoral Student/Research
Training Fellow
Frank Porter Graham Child
Development Center
University of North Carolina
Chapel Hill, N.C.

and James D. McKinney, Ph.d.
Associate Professor, School Psychology
Senior Research Investigator
Frank Porter Graham Child
Development Center
University of North Carolina
Chapel Hill, N.C.

A paper for presentation at the convention of the
Council for Exceptional Children
Atlanta, 1977

EC100779

Frank Porter Graham Child Development Center
Highway 54 Bypass West 071 A, Chapel Hill, N.C. 27514 - (919) 966-4121

SUCCESSFUL OUTCOMES IN LEARNING DISABILITIES PROGRAMS:
A FORMATIVE EVALUATION MODEL


## ABSTRACT

Formative evaluations which assess program processes and outcomes of learning disabilities intervention programs, with the aim to modify program components, are necessary if programs are to provide appropriate services for learning disabled children. These evaluations should consider antecedent, transaction, and outcome variables of the intervention. This paper presents a model for a formative evaluation which considers these variables. An evaluation study, done by the authors, which compares children with successful outcomes v. children with unsuccessful outcomes in 23 learning disabilities programs is discussed within the evaluation model framework.

Table 1
Formative Evaluation Model for LD Intervention Program

| ANTECEDENT VARIABLES | TRANSACTION VARIABLES | OUTCOME VARIABLES |
|---|---|---|
| A. CHILD VARIABLES:<br>1)demographic<br>2)nature and severity of disability<br>3) IQ and achievement<br>4)Personal/social behavior:<br>-regular class<br>-resource class<br>5)Self-concept<br>6)Task-related behavior:<br>-regular class<br>-resource class | 1)Program intensity:<br>-sessions per week<br>-program duration<br>-amount of teacher-child contact<br>2)Quality of LD teacher-child interaction:<br>-nature of reinforcement schedules<br>-rating on hostility-acceptance dimension<br>-rating on autonomy-control dimension | 1)Achievement outcomes<br>2)Personal/social behavioral outcomes:<br>-regular class<br>-resource class<br>3)Task-related behavioral outcomes:<br>-regular class<br>-resource class<br>4)Progress on specific disability |
| B. PROGRAM VARIABLES:<br>1)Teacher variables:<br>-demographic<br>-experience<br>-training<br>2)Curriculum variables:<br>-subject<br>-type and scope<br>3)Setting variables:<br>-teacher-child ratio<br>-location of service<br>4)Referral/diagnostic variables:<br>-type of diagnositcs used<br>-people involved<br>-types and amounts of information to teachers<br>-placement errors<br>5)Support system variables:<br>-parent involvement<br>-regular teacher involvement<br>-other involvement<br>6)Resource allocation variables:<br>-per pupil expenditure<br>-method of allocation<br>-% allocation per program variable | 3)LD teacher perception of probability of program outcome for a child<br>4)LD teaching methodology used:<br>-instructional<br>-planning<br>-assessment<br>-flexibility of methods<br>5)Lesson properties:<br>-continuity<br>-amount of teacher involvement<br>-distraction factors | 5)Self-concept outcomes<br>6)Perception of causes for program outcomes:<br>-LD teacher<br>-regular teacher<br>-child<br>-parent<br>-other |

# SUCCESSFUL OUTCOMES IN LEARNING DISABILITIES PROGRAMS: A FORMATIVE EVALUATION MODEL

## INTRODUCTION

Many educators, involved in special education interventions for learning disabled children, have stated a need for a logical formative evaluation strategy to assess the impact of their programs or to provide information for improvements. The questions of what factors should be examined and what methodologies should be chosen once the factors are established are difficult ones. The focus of this paper is on one type of formative evaluation model and a study which utilized that model.[1]

Scriven (1967) describes formative evaluation as an appraisal of the value or worth of a process or product which gives decision-makers information as to which components of the overall program need modification. Sanders and Cunningham (1973) discuss such an evaluation strategy as an "interim evaluation" which works with pieces of the program to upgrade the overall intervention. For our purpose in this paper, evaluation will refer to a formative assessment of program components, the processes and products, which can be revised.

A categorization of program factors, adapted from a model by Robert Stake (1967), provides a framework to discuss program variables to be assessed. Antecedent variables include those with-in program factors which exist prior to the actual involvement of the child in the LD intervention program. Examples of antecedent variables include the child's IQ level or the teacher's number of years of experience. Some evaluators refer to these variables as "incoming variables" (Hulka, 1975).

---

[1]The study was funded by the North Carolina State Department of Public Instruction under 1973 state legislation, The Act to Provide Public Education to Children with Learning Disabilities.

Secondly, transaction variables are those program factors which describe what is actually happening in the educational intervention with the child. Examples of transaction variables include the actual number of hours a teacher spends with the child per week or the teacher's use of particular reinforcement schedules with the child. The paucity of research or information on transaction variables in intervention programs is acute (Karnes, 1976).

The third category of program factors to be examined is outcome variables. An example of an outcome variables includes the amount of progress made in an area of academic work focused upon by the program. These variables have traditionally been given the most attention--a shortcoming true of most evaluations of educational projects (Cain and Hollister, 1972). A focus on outcome variables alone has the unfortunate result of producing little knowledge about what fostered or inhibited a positive outcome, and consequently has less utility for formative assessment.

Table one illustrates a hypothetical evaluation model in which critical variables in an LD intervention program are displayed according to an adaptation of Stake's model. An assessment of all of these variables in each of the three categories would likely be impossible for a single program or a single school system. However, it is increasingly more apparent that evaluations of LD intervention programs should be conducted based on a framework of antecedent, transaction, and program outcome variables. The authors believe that data can be obtained from LD programs and formative assessment methodologies can be utilized to evaluate these programs.

(Insert Table 1, page 3)

The following study, done by the authors, is used as an example of a formative evaluation study which has variables that can be organized according to the model in Table 1. Some of the variables listed in Table 1, though recognized as important, were either not applicable because of the 2 group comparison design, or were beyond the scope of the study.

STUDY BACKGROUND AND PURPOSE

This study, conducted by the Frank Porter Graham Child Development Center at the University of North Carolina in Chapel Hill, focused on the Categorical Learning Disability Programs in North Carolina during the second year of the programming effort. These programs, of which there were 89, operated primarily on an itinerant resource room format. The children served remained in their regularly assigned classrooms and reported to the resource room at regular intervals for special instruction. Each resource teacher made the referrals almost exclusively and the programs' learning disabilities teachers were almost solely responsible for assessment and placement of these children.

Children in these programs were mostly boys (4 boys to 1 girl) and usually white (4 white to 1 nonwhite). They ranged in age from 6-13, but most of the children were between 9-12 and in the 4th grade.

The study was designed as a formative evaluation of the overall programming effort. It attempted to identify the factors which contributed to a successful or unsuccessful educational outcome for the participating students. Major questions explored in the study were:

1. Do children who show the most successful outcomes in the categorical LD program differ on the following characteristics from those who show the least successful outcomes?

   --nature of their disability and educational problems

--severity of their disability and educational problems

--demographic characteristics

2. Do the following program components differ for the group with successful outcomes and the group with successful outcomes?

--setting variables

--referral system and diagnostic processes

--support systems variables

--curriculum materials and instructional methodologies

--program teachers' perception of causes of program outcomes

## METHODS

Sample. Each teacher of the 44 Categorical Learning Disabilities programs, which were in the second year of operation, was sent an initial screening questionnaire. They were asked to nominate the 5 children for whom their program had been the most successful and the 5 children for whom the program had been the least successful. Four criteria items were recommended as the basis of those nominations: academic success, basic skills success, social adjustment success, and personal competencies success. Based on the information obtained, 23 programs representing a state-wide sample were chosen for further study. To narrow the sample to a workable size, one child, from each of the two groups of 5 successful and 5 unsuccessful nominated, was chosen at random for the detailed comparison. The total study population, therefore, consisted of 23 children in the successful outcome group (1 from each program selected) and 23 children in the unsuccessful outcome group (1 from each program selected).

Procedure. Data collection techniques included on-site interviews of the program teachers and examination of the students records for each of

the 23 programs. In the interview period of 2 1/2 hours, equal time was spent in discussion of the specific program for the child with the successful outcome and for the child with the unsuccessful outcome. Measures were taken to insure the confidentiality of data from each interview made and each record examined. The interview questionnaire focused on the major areas of child characteristics and program components listed on page 4-5.

## RESULTS

In examining the LD programs of children who had successful outcomes versus those programs of children with unsuccessful outcomes, both cases evidencing differences and those evidencing no differences were informative.

### Antecedent Child Variables

Age and ability level (IQ). The average chronological age for the successful group was 112.17 months and that for the unsuccessful group was 107.34 months. The average IQ for the successful group was 95.5 and for the unsuccessful group was 90.60. A group (2) X grade (3) analysis of variance for each variable did not yield significant differences between the two groups in either age or IQ level.

Initial achievement level. The average grade equivalent score, as measured by norm-referenced tests given at the beginning of the year, was 2.72 for the successful group and 2.27 for the unsuccessful group. The successful group's average grade level was 3.8 and the unsuccessful group's average grade level was 4.4. Although the analysis of variance on these scores showed an expected grade level effect ($F=10.29$, $df=2/33$, $p<.001$), no significant differences were obtained between the successful and unsuccessful groups in initial achievement level.

Severity of learning disability. In order to obtain a measure of the number, kind and severity of each child's disabilities, the LD teachers were asked to complete a 48-item learning disabilities rating scale (McKinney, 1975), The scale provides ratings on a 5-point continuum for each of the following 11 areas:

1. Physical development--hearing, visual acuity, eye control, speech, and muscle control.
2. Self help--using utensils, eating, dressing, and toilet training.
3. Motor development--coordination, balance, and manual dexterity.
4. Visual perception--discrimination, figure-ground, and visual/motor integration.
5. Auditory perception--discrimination, following directions, comprehension and receptive vocabulary.
6. Memory--retention of auditory information, recall of non-meaningful and meaningful visual information, and retention of words.
7. Spoken language--sentence structure, expressive vocabulary, relating experiences, ideational fluency.
8. Conceptual skills--abstraction, creativity, logical thinking, conceptual tempo (reflective v. compulsive).
9. Orientation--judging time, spatial orientation, judging relationships, and learning directions.
10. Personal/social behavior--cooperation, attention, coping skills, social acceptance, responsibility, work attitude, tactfulness, and fexibility.
11. Specific achievement--reading, writing, spelling, and arithmetic.

The teacher was asked to describe the child's disability in each area (where need for remediation was evident) as either mild, moderate, severe, or profound in severity. In each case this judgment was based on a) the number of specified deficits displayed in that area, b) the extent which the deficits in a given area contributed to developmental delay,

and c)the amount of time devoted to remedial work in that area. In addition to the severity ratings for each of the 11 subscales, a general severity index was computed by multiplying the number of disabilities by the average severity rating.

Differences were apparent in both the number of disabilities that were identified and in the average severity of the disabilities that were rated. Children who were classified as successful displayed an average of 5.91 specific disabilities compared to 7.83 for those who were classified as unsuccessful ($F = 9.12$, $p<.004$). Children who were described as successful earned a mean severity rating of 2.15 compared to 2.83 for those who were described as unsuccessful ($F = 14.55$, $p<.007$). Consequently, children in the successful group showed a significantly lower LD severity index (13.85) compared to those in the unsuccessful group (22.94) ($F = 11.39$, $p<.002$). Table 2 displays this data.

In summary, these findings, indicate that in both the number of and severity of disabilities, the unsuccessful children were rated as significantly more disabled than were the successful children.

(insert Table 2, page 9)

Antecedent Program Variables

Referral system. The primary referrer was, for both groups, the regular classroom teacher. Few other people were involved in the referral process. The quantity and type of referral or diagnostic information available to the LD teacher was the same upon entrance to the program for both groups.

Diagnostic process. Psychologists were used in this process primarily to administer individualized IQ tests. Many teachers indicated

Table 2

Multivariate Analysis of Variance of the LD Severity Index

| DISABILITY AREA | F | p |
|---|---|---|
| Physical development | 0.76 | .388 |
| Self help | 0.09 | .765 |
| Motor development | 4.75 | .035 * |
| Visual perception | 3.19 | .081 |
| Auditory Perception | 11.85 | .001 * |
| Memory | 9.24 | .004 * |
| Spoken Language | 0.11 | .738 |
| Conceptual Skills | 2.65 | .111 |
| Orientation | 5.58 | .023 * |
| Personal/social behavior | 4.53 | .039 * |
| Specific Achievement | 3.03 | .089 |

* $p < .05$

that this IQ information arrived, however, too late or was too obtuse to be helpful in placement or planning decisions concerning the child. Reports from regular class teachers were available in about half the cases, but they were generally reported to be too informal and unspecific to be useful. Twenty-six percent of the successful outcome children were reported as having been misclassified as "learning disabled," while 35% of the unsuccessful outcome children were so reported. The successful children were most often referred to as having a "mild reading problem" while the unsuccessful children most often were referred to as being "emotionally disturbed." No notable differences in the type or quantity of diagnostic activities were found for the two groups.

Support systems. Though the incidence of regular teacher participation in the child's LD program for either group is low, regular teachers were twice as likely to be involved in the case of the successful outcome child. The same proportion was true of parent involvement. Other personnel input into the LD programs, either in planning or participation was negligible.

Setting variables. No differences were noted in the teacher-child ratio between the successful and unsuccessful groups.

Transaction Variables

Program intensity. There was no significant differences between the two groups for the average duration of treatment. However, children in the successful group were seen more frequently (3.8 hours/week) than were those in the unsuccessful group (2.9 hours/week). This finding represented a significant difference ($F = 4.26$, $p<.04$).

LD teachers' instructional methodologies. One of the major findings of this study was that, for the groups who were succeeding and not succeeding,

the methods used in teaching both groups were basically the same:

1. Reading was the main thrust of the program for both groups.

2. An almost exclusive auditory-visual approach was used in the teaching of reading. More auditory stress was found for the successful group and more visual stress was found for the unsuccessful group.

3. Kinesthetic-tactile approaches were rarely used and, when used, were supplemental.

4. Few teachers altered their method strategies for the unsuccessful children even after assessing the child's progress. Those teachers who said they did vary methods usually only altered the quantity of the work.

5. Selection of materials for the child in either group was based on familiarity and availability rather than in a diagnostic-perscriptive or task-analytic fashion.

Outcome Variables

Achievement outcomes. Children who were classified as successful made significantly more academic progress than the children classified as unsuccessful ($t = 2.47$, $p < .02$). Those who were classified as unsuccessful failed to show progress.

LD teachers' perceptions of causes for program outcomes. An efficacy rating by the LD teachers concerning that part of the program they felt contributed most to its success when successful and its lack of success when unsuccessful yielded the following results:

1. Teachers reported that instructional methods used with successful outcome children contributed most to the success of that group.

2. Teachers reported that the child's motivation and learning style was the biggest barrier to success in the unsuccessful outcome cases.

These ratings are noteworthy because instructional methods for both groups were basically the same. In other words when the child in the program succeeds the teachers take credit for the positive outcome,

but when the child fails, the child is seen to be at fault.

## CONCLUSIONS

In summary, children in the successful outcome group did not differ from those children in the unsuccessful outcome group in age, ability level, or academic attainment when they entered the LD program. The unsuccessful group did, however, display more specific disabilities which were rated as more severe than those of the successful roup, by the teacher. By the end of the year's intervention, the successful group had made significantly more academic progress than the unsuccessful group.

An examination of the program variables, to determine if the programs were different for the two groups, found no differences in curriculum, setting, referral, diagnostic, or support system variables. Program intensity, the amount of time per week the child was in the program, did vary significantly for the two groups with the successful children averaging 1 hour more per week than the unsuccessful children. Whether the successful children progressed because of the added instruction or whether the teachers chose to spend more time with the children evidencing progress was not determined by this study.

The absence of instructional methodologies form fit to a child's specific disabilities and the notable lack of changes in methods once the unsuccessful children began to fail are probably important, contributing factors to these children's lack of success.

## DISCUSSION

An effective learning disabilities program contains an entire system of programmatic components which interact with the child's unique characteristics. The formative evaluation model discussed in this paper attempts

to consider that interaction with its antecedent, transaction, and outcome variables. Without continued, systematic evaluation of components in each of these categories, program directors and other decision-makers will not be able to create "appropriate" services for LD children.

Additionally, an important point here, and one often neglected, is that formative evaluations need to focus on factors which are modifiable to be truly relevant to the decision-making process. Once a factor is found to be correlated with program success or failure--what can be done about it becomes the decision question. This model would insure that program outcomes are seen in the context of program transactions, and therefore, more knowledge about modifications would be available to the decision-maker.

## REFERENCES


Borders-Patterson, A., Huff, J., Mengel W., and Gallagher, J.J. Report on the 1973-1974 State Department of Public Instruction Categorical Learning Disabilities Program. Chapel Hill, N.C.: Frank Porter Graham Child Development Center, 1974.

Cain, G.G. and Hollister, R.G. The methodology of evaluating social action programs. In P.H. Rossi and W. Williams (Eds.), Evaluating Social Programs. New York: Seminar Press, 1972, 109-137.

George, P., Golden, L, Borders-Patterson, A. and McKinney, J. A study of successful outcomes in the categorical learning disabilities programs. Report of the Frank Porter Graham Child Development Center, Chapel Hill, N.C., 1975.

McKinney, J.D. Learning disabilities rating scale. Unpublished manuscript, Frank Porter Graham Child Development Center, Chapel Hill, N.C., 1975.

Scriven, M. The methodology of evaluation. AERA Monograph Series, 1967, No. 1, 39-83.

Stake, R. The countenance of educational evaluation. Teachers College Record, 1967, 68, 523-540.